

Clinical Microbiology

Code: 101006
ECTS Credits: 6

Degree	Type	Year	Semester
2500502 Microbiology	OB	3	1

Contact

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Use of languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Prerequisites

Although there is no official prerequisite, students are advised to review the concepts that refer to the microbial world, studied previously.

Objectives and Contextualisation

In this subject it is intended that the student:

- Know the most important groups of pathogenic microorganisms for humans.
- Know the basics of the microbiological diagnosis of a human infectious disease.
- Know how to evaluate the results of an antibiogram.
- Understand the relationships that are established between a pathogen and the human body.
- Know the great syndromes of human infectious disease.
- Know how to extract and correctly information regarding clinical microbiology and infectious diseases in humans from specialized sources.

Content

CONTENTS THEORETICAL CLASSES

Topic 1. General concepts.

Introduction. Areas of study of clinical microbiology. Groups of pathogenic microorganisms for humans. Host-parasitic relationships. Basic concepts about infectious diseases.

Topic 2. The laboratory of clinical microbiology.

Introduction. Objectives of the clinical microbiology laboratory. Diagnosis and sample pressure. Types of samples, collection and storage.

Topic 3. Urinary tract infections.

Introduction. Structure and function of the urinary tract. Factors that predispose the infection. Clinical manifestations. More frequent aetiological agents of uncomplicated cystitis: *Escherichia coli* and other gram-negative bacilli, *Staphylococcus saprophyticus* and other gram-positive bacteria. Laboratory Diagnostics. General rules for the treatment of urinary tract infections.

Topic 4. Infections of the genital system.

Introduction. Sexually transmitted diseases. Structure and function of the genital system. Factors that predispose to the infection. Clinical manifestations. Etiologic agents. *Neisseria gonorrhoeae* and *Chlamydia trachomatis*: urethritis and cervicitis. *Candida albicans* and *Trichomonas vaginalis*: vulvovaginitis. Genital ulcers: *Treponema pallidum* and herpes simplex virus. *Papillomavirus*: genital warts and cancer. Laboratory Diagnostics. Treatment and prevention. Post-part endometritis: *Streptococcus agalactiae*.

Topic 5. Respiratory infections.

Introduction. Structure and function of the respiratory system. Factors that predispose to the infection. Clinical manifestations. *Rhinovirus*: common cold. *Streptococcus pyogenes*: Pharyngotonsillitis. *Corynebacterium diphtheriae*: diphtheria. Respiratory viruses and acute bronchitis. *Bordetella pertussis*. Pneumonia, etiologic agents. *Streptococcus pneumoniae*, *Legionella pneumophila*. Tuberculosis: *Mycobacterium tuberculosis*. Laboratory diagnosis of respiratory infections. Treatment and prevention.

Topic 6. Oral and sinus infections.

The ear, structure and function. Factors that predispose to the infection. Clinical manifestations. Etiologic agents. External otitis: *Pseudomonas*, *Aspergillus* and *Candida*. Agents of acute and chronic otitis media. Laboratory diagnostic. Treatment and prevention. Structure and function of the paranasal sinuses. Factors that predispose to the infection. Clinical manifestations. Most frequent etiologic agents of sinusitis. Laboratory diagnostic. Treatment and prevention.

Unit 7. Eye infections.

The eye, structure and function. Clinical manifestations. Etiologic agents. *Chlamydia trachomatis*: the trachoma. *Neisseria gonorrhoeae*: purulent acute conjunctivitis. Viral infections. Infection of the ocular annexes. Laboratory diagnosis. Treatment and prevention.

Lesson 8. Infections of the digestive tract.

Infection of the oral cavity. The mouth and teeth, structure and function. Factors that predispose to the infection. Clinical manifestations. Etiologic agents. *Streptococcus mutans*: dental caries. *Porphyromonas gingivalis*: periodontal disease. Structure and function of the gastrointestinal tract. Factors that predispose to the infection. Clinical manifestations Chronic gastritis and peptic ulcer: *Helicobacter pylori*. Intestinal infection Etiological agents of infectious gastroenteritis. Intestinal Helminthiasis. Toxicoinfection of food. Etiologic diagnosis. Treatment and prevention. Liver infection. Clinical manifestations. Etiologic agents. Laboratory diagnosis. Treatment and prevention.

Item 9. Infections of the nervous system.

The nervous system, structure and function. Factors that predispose to the infection. Clinical manifestations. Etiologic agents of meningitis and encephalitis: *Neisseria meningitidis*, *Listeria monocytogenes*, enterovirus. Prions encephalopathies. Laboratory diagnosis. Treatment and prevention.

Topic 10. Infections of the skin and subcutaneous tissue.

Introduction. Skin and subcutaneous tissue, structure and function. Factors that predispose to the infection. Clinical manifestations Etiologic agents that cause skin and subcutaneous infections. Laboratory diagnosis.

Treatment and prevention.

Topic 11. Infections of the circulatory system

Bacteremia, fungemia, viremia and parasitemia. Primary bacteremia. Secondary bacteremia. Sepsis and septic shock. Hemoculture. Causal agents of bacteremia. *Brucella*, *Francisella tularensis* and *Yersinia pestis*.

CONTENT SEMINARS

Preparation and presentation by students of scientific articles related to theory classes.